



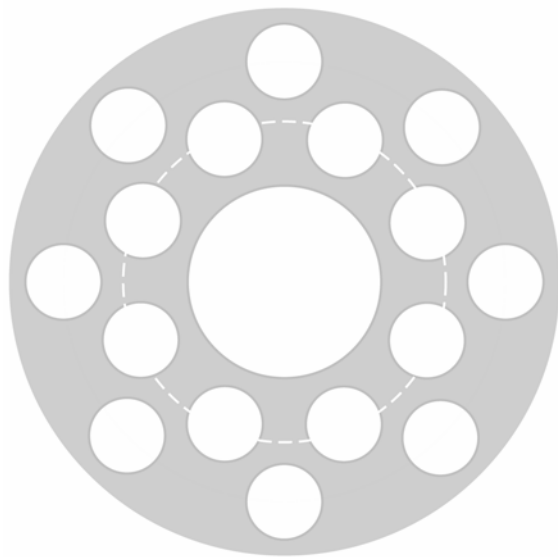
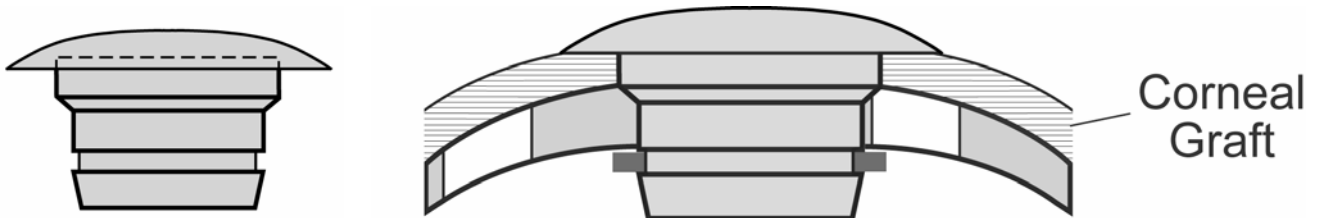
Boston Keratoprosthesis Update

Newsletter IV: 2007

Editor: Veronica Garrett-Young

<http://www.meei.harvard.edu/shared/optho/cornea2.php>

A New Boston KPro Design: Threadless

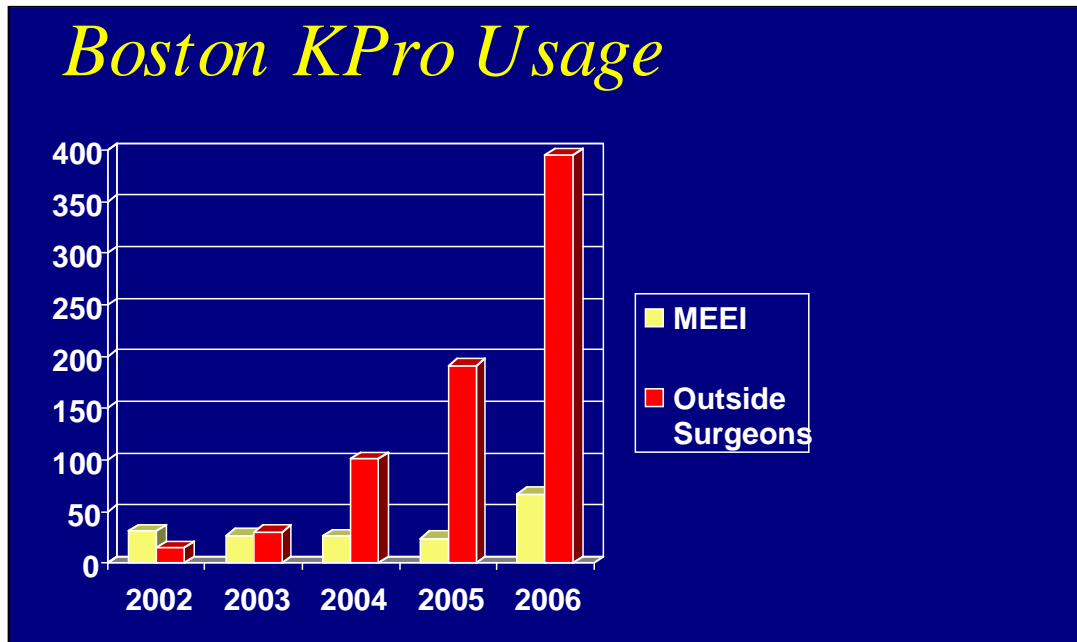


In the later part of 2007 a new KPro design will be available. The major change is a threadless stem, meaning the back plate is simply placed on the stem and locked with the snap ring. This arrangement has the advantage of simplifying surgery and causing less trauma to the posterior layers of the graft compared to the screw-on back plate. It will also allow manufacturing by molding, thereby making it less expensive.



The back plate has more holes, allowing better diffusion of aqueous into the graft. Viscoelastics to the posterior surface of the graft during assembly is still recommended to protect the endothelium. (Dig J Ophthalmol, in press)

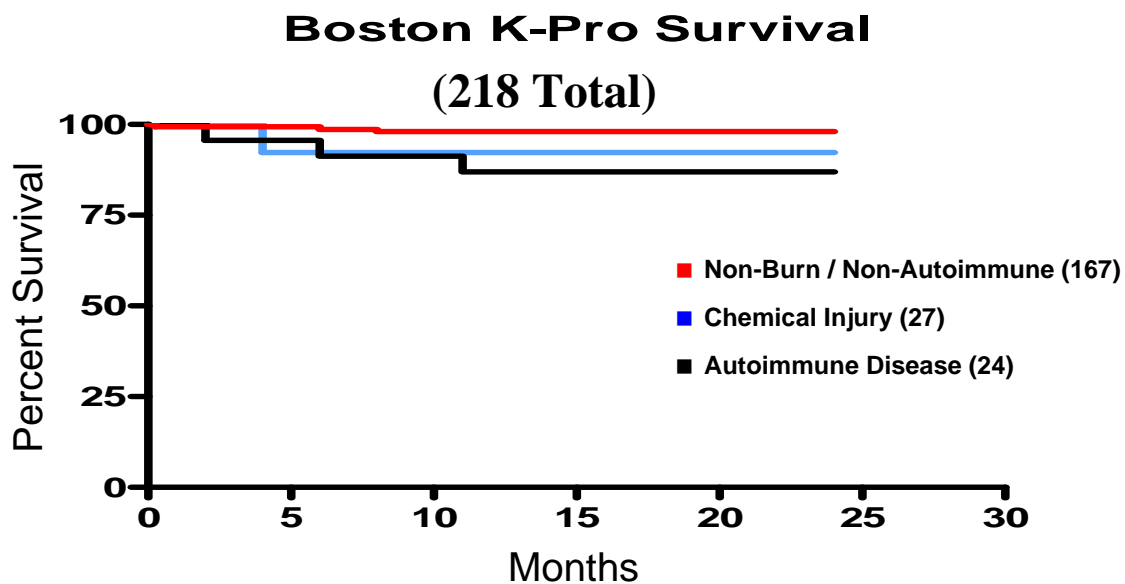
Over 1500 Boston KPros Implanted...



Prepared By Kathryn Colby, MD, PhD

Interest in the Boston KPro continues to increase. About 1500 have been implanted world wide. The above bar graph illustrates the annual implantation rate since 2002. (The device was FDA approved for marketing in 1992. That year less than 15 KPros were implanted in the US.)

Update on the Multi-Institutional Retention Study:



Based on data from 20 surgeons, compiled by Drs Belin, Zerbe and Ciolino.

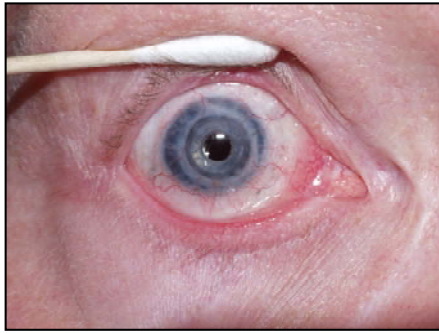
Boston KPro in HSV keratitis and aniridia:

Mona Harissi-Dagher, MD, FRCSC

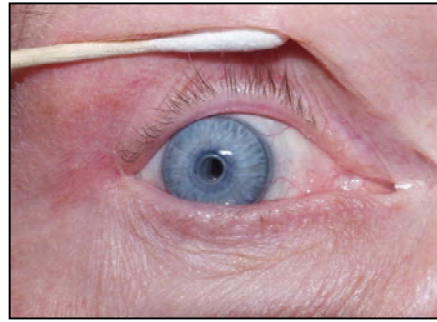
Herpetic keratitis. Standard corneal transplantation in herpes simplex virus keratitis traditionally carries a poorer long-term prognosis compared to several other categories of corneal recipients. Graft failures are not uncommon and subsequent corneal transplants carry an even lower chance of survival. We have looked at our experience at the Massachusetts Eye and Ear Infirmary and the University of Rochester Eye Institute of implanting a fresh corneal graft with the Boston KPro Type I, in patients with failed corneal graft who had herpes simplex virus keratitis scarring. Follow up ranged between 6 to 72 months with a median of 14 months. All patients had improvement in postoperative visual acuity, with 94% getting better than preoperative vision within 1 week. 88% achieved the best visual acuity of 20/25 to 20/70 and, at last exam, 64% were still in that range. Four patients with prolonged preoperative inflammation and ulceration at the time of KPro placement had resolution of inflammation within days. Thus, the Boston KPro can be of value in patients with graft failure from herpetic keratitis, even in the inflamed stage [Khan, Harissi-Dagher, Pavan-Langston, Aquavella, Dohlman: Arch Ophthalmol 2007; 125:745-749]

Aniridia. Because of limbal stem cell deficiency, corneal transplantation in aniridia carries a poor prognosis. Although combination of stem cell transplantation with immunosuppression has been relatively successful, the long-term systemic medication can be a burden. A series of fifteen patients with aniridia was reviewed in this multi-center study to determine the efficacy of KPro surgery in improving visual outcomes of these patients. We have demonstrated the feasibility of the surgery, the improved visual outcomes, and the maintenance of this visual result over many months or years of follow-up. The need for systemic immunosuppression, and its resultant potential systemic complications and morbidity are obviated. We suggest that KPro may be considered as the primary management of severe keratopathy in patients with congenital aniridia [Akpek, Harissi-Dagher, Petrarca, Butrus, Pineda, Aquavella, Dohlman. Amer J Ophthalmol. In press]

Trauma Cases:



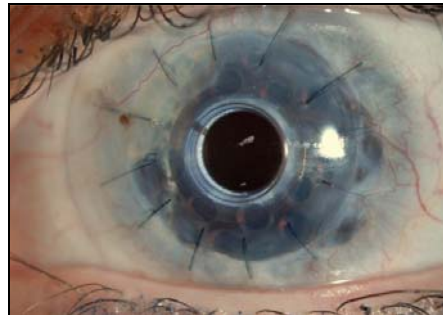
Successful implantation of Boston Keratoprosthesis Type I in a traumatized eye following three failed PKs.



A painted soft contact lens can perfectly match the iris color of the normal left eye. Visual acuity is 20/50.



Chemical burn with four failed grafts



Nine months postoperatively (new threadless design) vision 20/20

Profile of a KPro surgeon: *Michael W. Belin, MD*



Dr. Belin is a world authority on corneal diseases. He is Professor and Director of the Cornea & Refractive Surgery Service at Albany Medical College and is a recipient of the American Academy of Ophthalmology's Honor Award, Senior Honor Award and Achievement Award (a honor bestowed on less than 1% of Ophthalmologists).

With his vast knowledge and experience in corneal surgery, he has launched a pivotal and ongoing study that is investigating indications, practices, complications and outcome of the Boston KPro at multiple institutions – the only of its kind. This and other initiatives have made Dr. Belin a leader in the keratoprosthesis research field.

New Members of the Boston KPro Team:



Irmgard Behlau, MD
Microbiology Research



Joe Ciolino, MD
Clinical and Research
Fellow



Jared Ament, MD
Research Fellow



Rony Sayegh, MD
Research Fellow



Rhonda Walcott-Harris
Administrative Assistant



Eli Peli, M.Sc, OD
Schepens Eye
Research Institute



Daniel Kohane, MD, PhD
Children's Hospital,
Boston



Amit Todani, MD
Research Fellow

Recent Boston KPro Literature – 2006 to in press:

Dohlman CH, Harissi-Dagher M, Khan BF, Sippel KC, Aquavella J, Graney JM. Introduction to the use of the Boston Keratoprosthesis. *Expert Review of Ophthalmol* 1: 41-48, 2006

Harissi-Dagher M, Dohlman CH. The Boston Keratoprosthesis. *Contemp Ophthalmol* 5 (23) 1-7, 2006

Bothelo P, Congdon NG, Flanda JE, Akpek EK: Keratoprosthesis in high-risk pediatric corneal transplantation: First two cases. *Arch Ophthalmol* 2006;124: 1356-1357

Aquavella JV, Qian Y, McCormack GJ, Palakurn JR: Keratoprosthesis: Current techniques. *Cornea* 2006 Jul;25(6):656-62

Zerbe BL, Belin MW, Ciolino JB: Results from the Multicenter Boston Type I Keratoprosthesis Study. *Ophthalmology*, 2006 Oct;113(10):1779

Barnes SD, Dohlman CH, Durand ML. Fungal colonization in the Boston Keratoprosthesis. *Cornea* 2007 26: 9-15 2007

Kocaturk T, Dohlman CH. Keratoprotez Cerrahisi. *Turkiye Klinikleri J Ophthalmol* 2007; 16 :47-55

Harissi-Dagher M, Khan BF, Schaumberg DA, Dohlman CH. Importance of Nutrition to Corneal Grafts When Used as a Carrier of the Boston Keratoprosthesis. *Cornea*. 2007 Jun;26(5):564-568.

Khan BF, Harissi-Dagher M, Khan DM, Dohlman CH. Advances in Boston keratoprosthesis: enhancing retention and prevention of infection and inflammation. *Int Ophthalmol Clin*. 2007 Spring;47(2):61-71.

Akpek EK, Harissi-Dagher M, Petrarca R, Butrus SI, Pineda R 2nd, Aquavella JV, Dohlman CH. Outcomes of Boston Keratoprosthesis in Aniridia: A Retrospective Multicenter Study. *Am J Ophthalmol*. 2007 Jun 1

Khan BF, Harissi-Dagher M, Langston DP, Aquavella J, Dohlman CH. The Boston Keratoprosthesis in Herpetic Keratitis, *Arch Ophthalmol*. 2007;125:745-749.

Aquavella JV, Gearing MD, Akpek EK, McCormick GJ. Pediatric Keratoprosthesis. *Ophthalmology* 2007;114:989-94.

Waller S., Dohlman CH. The Boston Keratoprosthesis. In: Brightbill, F. ed. *Corneal Surgery: Theory, Technique and Tissue*. 4th ed., Mosby, in press

Khan BF, Harissi –Dagher M, Dohlman CH. Keratoprosthesis. Albert DM, Miller JW, editors, Azar DT, Blodi BA, associate editors. In: Albert and Jakobiec's *Principles and Practice in Ophthalmology*, 3rd Edition. London: Elsevier, in press.

Harissi-Dagher M, Khan BF, Dohlman CH. The Boston Keratoprosthesis. In: *Corneal transplantation*. Rasik B Vajpayee, editor, Namrata Sharma, Geoffrey C Tabin and Hugh R Taylor, co-editors. Vajaypee Brothers Medical Publishers. New Delhi, in press.

Sayegh RR, Ang LPK, Foster CS, Dohlman CH. The Boston Keratoprosthesis in Stevens-Johnson Syndrome : An Update. Submitted to Am J Ophthalmol
Akpek E, Harissi-Dagher M, Petrarca R, Butrus S, Pineda R, Aquavella J, Dohlman CH. Outcomes of Boston Keratoprosthesis in aniridia” A retrospective multicenter study. Submitted to Amer J Ophthalmol

Sa-ngiampornpanit T, Thiagalingam S, Dohlman CH. Boston Keratoprosthesis in epithelial downgrowth. Submitted to Oc Surf J

Durand ML, Dohlman CH. Preventing bacterial endophthalmitis after keratoprosthesis:the effect of topical vancomycin in prophylaxis. Submitted to Clin Inf Dis

Pavan-Langston D, Dohlman CH. Boston Keratoprosthesis:treatment of herpes zoster neurotrophic keratopathy. Amer J Ophthalmol in press

Harissi-Dagher M, Dohlman CH: The Boston Keratoprosthesis in severe ocular trauma. J Can Ophthalmol, in press

McLellan CL, Ngo V, Pasedia S, Dohlman CH. Long-term stability of vancomycin ophthalmic solution. Submitted to Int J Pharm Comp

Dohlman CH, Harissi-Dagher M, Graney JM. The Boston Keratoprosthesis: A new threadless design. Dig J Ophthalmol, in press.

Recent Boston KPro Posters: 2006 – 2007

AAO 2006

Badala F, Ayres B, Raber I, Hannush SB: Boston Type I Keratoprosthesis: A Safe and Effective Alternative to Penetrating Keratoplasty. Poster # 93

ARVO 2006

Harissi-Dagher M, Khan BF, Dohlman CH: The Importance of Nutrition to Corneal Grafts When Used as a Carrier of the Boston Keratoprosthesis. Poster # 3932

Khan BF, Harissi-Dagher M, Turalba AV, Dohlman CH: Herpetic Keratitis and Aniridia: Boston Keratoprosthesis. Poster # 3933

Hannush SB, Badala F: Management of Glaucoma with the Boston Keratoprosthesis. . Poster # 3944.

ARVO 2007

Harassi-Dagher M, Dohlman CH: The Boston Keratoprosthesis in Severe Ocular Trauma. Poster # 1889

Ciolino JB, Khachikian SS, Zerbe BL, Belin MW: Rapid Visual Rehabilitation After Boston KPro implantation; One Week Post-Operative Vision From the Multicenter Boston Type I Keratoprosthesis Study. Poster # 1892

Youssef PN, Brown SJ, Wu M, Shen TT: Clinical Outcomes of Keratoprosthesis Implantation in Patients with Severe Corneal Blindness. Poster # 1893

Saad CG, Ayres BD, Cohen EJ: The Keratoprosthesis in Patients with Autoimmune Polyendocrinopathy-Candidiasis-Ectodermal Dystrophy (APECED). Poster # 1894

Sippel KC: Techniques in Permanent Keratoprosthesis Surgery: Intraoperative Dexamethasone May Predispose to Postoperative Vitreous Hemorrhage. Poster # 1897

Garcia, Jr., JP, de la Cruz J, Rosen RB, Buxton DF: Imaging Implanted Keratoprostheses with Anterior Segment OCT and UBM. Poster #3868

Shih, T-Ay, Aldave AJ, Law SK: Glaucoma in Patients Undergoing Boston Type I Keratoprosthesis Placement. Poster #3969

Invitation to KPro Users Breakfast:

You are cordially invited to attend the “Boston KPro Users Breakfast” to be held during the AAO meeting Monday, November 12, 2007, 7:30-9:00AM Loews New Orleans Hotel. For further information, please contact Larisa Gelfand at 617-573-4463 or larisa_gelfand@meei.harvard.edu .

You are welcome to bring colleagues.

Boston Keratoprosthesis E-Newsletter

Please let us know if you would like to receive the email version of the newsletter or if your mailing address has changed. Email your contact information to larisa_gelfand@meei.harvard.edu or send via fax, 617-573-4369.

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Fax number: _____